



PTO/SB/08A/B (09-06)

Approved for use through 03/31/2007. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form PTO/SB/08A/B INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	10/736,883-Conf. #6781
				Filing Date	December 15, 2003
				First Named Inventor	Diane Lipscombe
				Art Unit	1649
				Examiner Name	S. H. Standley
				Attorney Docket Number	B0877.70026US00
Sheet	1	of	4		

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language translation is attached.

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
/S.S./	C1	AKOPIAN et al., A tetrodotoxin-resistant voltage-gated sodium channel expressed by sensory neurons. Nature. 1996 Jan 18;379(6562):257-62.		
/S.S./	C2	BACCEI et al., Voltage-gated calcium currents in axotomized adult rat cutaneous afferent neurons. J Neurophysiol. 2000 Apr;83(4):2227-38.		
/S.S./	C3	BELL et al., Analysis of N-type calcium current and Ca _v 2.2 α 1 splice variants in nociceptive neurons. Department of Neuroscience, Brown University, Providence, RI. 2002.		
/S.S./	C4	BLACK, Splicing in the inner ear: a familiar tune, but what are the instruments? Neuron. 1998 Feb;20(2):165-8.		
/S.S./	C5	BLAIR et al., Roles of tetrodotoxin (TTX)-sensitive Na ⁺ current, TTX-resistant Na ⁺ current, and Ca ²⁺ current in the action potentials of nociceptive sensory neurons. J Neurosci. 2002 Dec 1;22(23):10277-90.		
/S.S./	C6	BOWERSOX et al., Selective N-type neuronal voltage-sensitive calcium channel blocker, SNX-111, produces spinal antinociception in rat models of acute, persistent and neuropathic pain. J Pharmacol Exp Ther. 1996 Dec;279(3):1243-9.		
/S.S./	C7	BOWERSOX et al., Pharmacotherapeutic potential of omega-conotoxin MVIIA (SNX-111), an N-type neuronal calcium channel blocker found in the venom of Conus magus. Toxicon. 1998 Nov;36(11):1651-8.		
/S.S./	C8	BOWERSOX et al., Differential blockade of voltage-sensitive calcium channels at the mouse neuromuscular junction by novel omega-conopeptides and omega-agatoxin-IVA. J Pharmacol Exp Ther. 1995 Apr;273(1):248-56.		
/S.S./	C9	BROSE et al., Use of intrathecal SNX-111, a novel, N-type, voltage-sensitive, calcium channel blocker, in the management of intractable brachial plexus avulsion pain. Clin J Pain. 1997 Sep;13(3):256-9.		
/S.S./	C10	CAHILL et al., Coexpression of cloned alpha(1B), beta(2a), and alpha(2)/delta subunits produces non-inactivating calcium currents similar to those found in bovine chromaffin cells. J Neurosci. 2000 Mar 1;20(5):1685-93.		

Examiner Signature	/Steven Standley/	Date Considered	10/22/2007
--------------------	-------------------	-----------------	------------

1146886.1

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/736,883-Conf. #6781
		Filing Date	December 15, 2003
		First Named Inventor	Diane Lipscombe
		Art Unit	1649
		Examiner Name	S. H. Standley
		Attorney Docket Number	B0877.70026US00
Sheet	2	of	4

/S.S./	C11	CARBONE et al., A low voltage-activated, fully inactivating Ca channel in vertebrate sensory neurones. Nature. 1984 Aug 9-15;310(5977):501-2.
/S.S./	C12	CARDENAS et al., Variation in serotonergic inhibition of calcium channel currents in four types of rat sensory neurons differentiated by membrane properties. J Neurophysiol. 1995 Nov;74(5):1870-9.
/S.S./	C13	CATERINA et al., The vanilloid receptor: a molecular gateway to the pain pathway. Annu Rev Neurosci. 2001;24:487-517.
/S.S./	C14	CATERINA et al., The capsaicin receptor: a heat-activated ion channel in the pain pathway. Nature. 1997 Oct 23;389(6653):816-24.
/S.S./	C15	CHAPLAN et al., Role of voltage-dependent calcium channel subtypes in experimental tactile allodynia. J Pharmacol Exp Ther. 1994 Jun;269(3):1117-23.
/S.S./	C16	COPPOLA et al., Molecular cloning of a murine N-type calcium channel alpha 1 subunit. Evidence for isoforms, brain distribution, and chromosomal localization. FEBS Lett. 1994 Jan 24;338(1):1-5.
/S.S./	C17	COX et al., Calcium channel blockers and pain therapy. Curr Rev Pain. 2000;4(6):488-98.
/S.S./	C18	DIB-HAJJ et al., NaN, a novel voltage-gated Na channel, is expressed preferentially in peripheral sensory neurons and down-regulated after axotomy. Proc Natl Acad Sci U S A. 1998 Jul 21;95(15):8963-8.
/S.S./	C19	DJOUHRI et al., Association of somatic action potential shape with sensory receptive properties in guinea-pig dorsal root ganglion neurones. J Physiol. 1998 Dec 15;513 (Pt 3):857-72.
/S.S./	C20	DUBEL et al., Molecular cloning of the alpha-1 subunit of an omega-conotoxin-sensitive calcium channel. Proc Natl Acad Sci U S A. 1992 Jun 1;89(11):5058-62.
/S.S./	C21	DUNLAP et al., Neurotransmitters decrease the calcium component of sensory neurone action potentials. Nature. 1978 Dec 21-28;276(5690):837-9.
/S.S./	C22	FELIX et al., Voltage-dependent Ca2+ channel alpha2delta auxiliary subunit: structure, function and regulation. Receptors Channels. 1999;6(5):351-62.
/S.S./	C23	FUJITA et al., Primary structure and functional expression of the omega-conotoxin-sensitive N-type calcium channel from rabbit brain. Neuron. 1993 Apr;10(4):585-98.
/S.S./	C24	GAO et al., Role of the C terminus of the alpha 1C (CaV1.2) subunit in membrane targeting of cardiac L-type calcium channels. J Biol Chem. 2000 Aug 18;275(33):25436-44.
/S.S./	C25	HARPER et al., Conduction velocity is related to morphological cell type in rat dorsal root ganglion neurones. J Physiol. 1985 Feb;359:31-46.
/S.S./	C26	HATAKEYAMA et al., Differential nociceptive responses in mice lacking the alpha(1B) subunit of N-type Ca(2+) channels. Neuroreport. 2001 Aug 8;12(11):2423-7.
/S.S./	C27	HEYMAN et al., Depolarizing responses to capsaicin in a subpopulation of rat dorsal root ganglion cells. Neurosci Lett. 1985 May 1;56(1):69-75.
/S.S./	C28	HIBINO et al., RIM binding proteins (RBPs) couple Rab3-interacting molecules (RIMs) to voltage-gated Ca(2+) channels. Neuron. 2002 Apr 25;34(3):411-23.
/S.S./	C29	HOLZ et al., Characterization of the electrically evoked release of substance P from dorsal root ganglion neurons: methods and dihydropyridine sensitivity. J Neurosci. 1988 Feb;8(2):463-71.
/S.S./	C30	HORN et al., Muscarinic activation of ionic currents measured by a new whole-cell recording method. J Gen Physiol. 1988 Aug;92(2):145-59.
/S.S./	C31	IKEDA et al., Voltage-dependent modulation of N-type calcium channels: role of G protein subunits. Adv Second Messenger Phosphoprotein Res. 1999;33:131-51.

Examiner Signature	/Steven Standley/	Date Considered	10/22/2007
--------------------	-------------------	-----------------	------------

Substitute for form 1449/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/736,883-Conf. #6781
		Filing Date	December 15, 2003
		First Named Inventor	Diane Lipscombe
		Art Unit	1649
		Examiner Name	S. H. Standley
		Attorney Docket Number	B0877.70026US00
Sheet	3	of	4

/S.S./	C32	INO et al., Functional disorders of the sympathetic nervous system in mice lacking the alpha 1B subunit (Cav 2.2) of N-type calcium channels. Proc Natl Acad Sci U S A. 2001 Apr 24;98(9):5323-8.	
/S.S./	C33	JONES et al., The role of Ca2+-activated K+ channel spliced variants in the tonotopic organization of the turtle cochlea. J Physiol. 1999 Aug 1;518 (Pt 3):653-65.	
/S.S./	C34	KERR et al., Autoradiographic localization of calcium channels with [125I]omega-conotoxin in rat brain. Eur J Pharmacol. 1988 Jan 27;146(1):181-3.	
/S.S./	C35	KIM et al., Altered nociceptive response in mice deficient in the alpha(1B) subunit of the voltage-dependent calcium channel. Mol Cell Neurosci. 2001 Aug;18(2):235-45.	
/S.S./	C36	LIN et al., Identification of functionally distinct isoforms of the N-type Ca2+ channel in rat sympathetic ganglia and brain. Neuron. 1997 Jan;18(1):153-66.	
/S.S./	C37	LIN et al., Alternative splicing of a short cassette exon in alpha1B generates functionally distinct N-type calcium channels in central and peripheral neurons. J Neurosci. 1999 Jul 1;19(13):5322-31.	
/S.S./	C38	LIPSCOMBE et al., L-type calcium channels: highs and new lows. Circ Res. 2002 May 17;90(9):933-5.	
/S.S./	C39	LIPSCOMBE et al., Alternative splicing in voltage-gated calcium channels. In: Calcium channel pharmacology. S.I. McDonough, ed. Kluwer Academic/Plenum. 2003.	
/S.S./	C40	LIPSCOMBE et al., Functional diversity in neuronal voltage-gated calcium channels by alternative splicing of Ca(v)alpha1. Mol Neurobiol. 2002 Aug;26(1):21-44.	
/S.S./	C41	LU et al., Cloning and functional expression of novel N-type Ca(2+) channel variants. J Biol Chem. 1999 Dec 3;274(49):34566-75.	
/S.S./	C42	LUO et al., Upregulation of dorsal root ganglion (alpha)2(delta) calcium channel subunit and its correlation with allodynia in spinal nerve-injured rats. J Neurosci. 2001 Mar 15;21(6):1868-75.	
/S.S./	C43	MAGGI et al., Neurochemical evidence for the involvement of N-type calcium channels in transmitter secretion from peripheral endings of sensory nerves in guinea pigs. Neurosci Lett. 1990 Jul 3;114(2):203-6.	
/S.S./	C44	MATTHEWS et al., Effects of spinally delivered N- and P-type voltage-dependent calcium channel antagonists on dorsal horn neuronal responses in a rat model of neuropathy. Pain. 2001 May;92(1-2):235-46.	
/S.S./	C45	MAXIMOV et al., Synaptic targeting of N-type calcium channels in hippocampal neurons. J Neurosci. 2002 Aug 15;22(16):6939-52.	
/S.S./	C46	MAXIMOV et al., Association of neuronal calcium channels with modular adaptor proteins. J Biol Chem. 1999 Aug 27;274(35):24453-6.	
/S.S./	C47	MCCLESKEY et al., Ion channels of nociception. Annu Rev Physiol. 1999;61:835-56.	
/S.S./	C48	MILJANICH et al., Antagonists of neuronal calcium channels: structure, function, and therapeutic implications. Annu Rev Pharmacol Toxicol. 1995;35:707-34.	
/S.S./	C49	NAVARATNAM et al., Differential distribution of Ca2+-activated K+ channel splice variants among hair cells along the tonotopic axis of the chick cochlea. Neuron. 1997 Nov;19(5):1077-85.	
/S.S./	C50	PAN et al., Alternative splicing in the cytoplasmic II-III loop of the N-type Ca channel alpha 1B subunit: functional differences are beta subunit-specific. J Neurosci. 2000 Jul 1;20(13):4769-75.	
/S.S./	C51	PETRUSKA et al., Subclassified acutely dissociated cells of rat DRG: histochemistry and patterns of capsaicin-, proton-, and ATP-activated currents. J Neurophysiol. 2000 Nov;84(5):2365-79.	
/S.S./	C52	REGAN et al., Ca2+ channels in rat central and peripheral neurons: high-threshold current resistant to dihydropyridine blockers and omega-conotoxin. Neuron. 1991 Feb;6(2):269-80.	
Examiner Signature	/Steven Standley/		Date Considered 10/22/2007

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>		Complete If Known			
		Application Number	10/736,883-Conf. #6781		
		Filing Date	December 15, 2003		
		First Named Inventor	Diane Lipscombe		
		Art Unit	1649		
		Examiner Name	S. H. Standley		
Sheet	4	of	4	Attorney Docket Number	B0877.70026US00

/S.S./	C53	RENGANATHAN et al., Contribution of Na(v)1.8 sodium channels to action potential electrogenesis in DRG neurons. J Neurophysiol. 2001 Aug;86(2):629-40.	
/S.S./	C54	RITTER et al., Somal membrane properties of physiologically identified sensory neurons in the rat: effects of nerve growth factor. J Neurophysiol. 1992 Dec;68(6):2033-41.	
/S.S./	C55	ROSENBLATT et al., Distribution of Ca2+-activated K+ channel isoforms along the tonotopic gradient of the chicken's cochlea. Neuron. 1997 Nov;19(5):1061-75.	
/S.S./	C56	SAEGUSA et al., Suppression of inflammatory and neuropathic pain symptoms in mice lacking the N-type Ca2+ channel. EMBO J. 2001 May 15;20(10):2349-56.	
/S.S./	C57	SAEGUSA et al., Effects of ablation of N- and R-type Ca(2+) channels on pain transmission. Neurosci Res. 2002 May;43(1):1-7.	
/S.S./	C58	SCHROEDER et al., T-type calcium channels: heterogeneous expression in rat sensory neurons and selective modulation by phorbol esters. J Neurosci. 1990 Mar;10(3):947-51.	
/S.S./	C59	SCROGGS et al., Calcium current variation between acutely isolated adult rat dorsal root ganglion neurons of different size. J Physiol. 1992 Jan;445:639-58.	
/S.S./	C60	SCROGGS et al., Multiple Ca2+ currents elicited by action potential waveforms in acutely isolated adult rat dorsal root ganglion neurons. J Neurosci. 1992 May;12(5):1789-801.	
/S.S./	C61	SHIN et al., A T-type calcium channel required for normal function of a mammalian mechanoreceptor. Nat Neurosci. 2003 Jul;6(7):724-30.	
/S.S./	C62	SIMEN et al., The C terminus of the Ca channel alpha1B subunit mediates selective inhibition by G-protein-coupled receptors. J Neurosci. 2001 Oct 1;21(19):7587-97.	
/S.S./	C63	SOONG et al., Systematic identification of splice variants in human P/Q-type channel alpha1(2.1) subunits: implications for current density and Ca2+-dependent inactivation. J Neurosci. 2002 Dec 1;22(23):10142-52.	
/S.S./	C64	TOMINAGA et al., The cloned capsaicin receptor integrates multiple pain-producing stimuli. Neuron. 1998 Sep;21(3):531-43.	
/S.S./	C65	VANEGAS et al., Effects of antagonists to high-threshold calcium channels upon spinal mechanisms of pain, hyperalgesia and allodynia. Pain. 2000 Mar;85(1-2):9-18.	
/S.S./	C66	WILLIAMS et al., Structure and functional expression of an omega-conotoxin-sensitive human N-type calcium channel. Science. 1992 Jul 17;257(5068):389-95.	
/S.S./	C67	WILLIAMS et al., Structure and functional expression of alpha 1, alpha 2, and beta subunits of a novel human neuronal calcium channel subtype. Neuron. 1992 Jan;8(1):71-84.	
/S.S./	C68	WITCHER et al., Subunit identification and reconstitution of the N-type Ca2+ channel complex purified from brain. Science. 1993 Jul 23;261(5120):486-9.	
/S.S./	C69	XIE et al., A CaMK IV responsive RNA element mediates depolarization-induced alternative splicing of ion channels. Nature. 2001 Apr 19;410(6831):936-9.	
/S.S./	C70	XIE et al., Control of alternative splicing of potassium channels by stress hormones. Science. 1998 Apr 17;280(5362):443-6.	
/S.S./	C71	XU et al., Neuronal Ca(V)1.3alpha(1) L-type channels activate at relatively hyperpolarized membrane potentials and are incompletely inhibited by dihydropyridines. J Neurosci. 2001 Aug 15;21(16):5944-51.	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature	/Steven Standley/	Date Considered	10/22/2007
--------------------	-------------------	-----------------	------------